RESULTS

Comparison to the United States

In 1980 there were 830 neonatal deaths in North Carolina out of 84,481 live births for a rate of 9.8 neonatal deaths per 1000 live births. United States data for 1980, the latest available, show a crude neonatal death rate of 8.5 (9), which is 13 percent lower than the North Carolina rate. If, however, we assume that North Carolina births had the same weight distribution as United States births, a different picture emerges (Table 1).

In North Carolina 7.9 percent of 1980 births were below 2501 grams, compared to 6.8 percent in the United States. If North Carolina had experienced the same birth-weight distribution as the United States, 932 fewer infants of low birth weight would have been born in North Carolina in 1980. Applying the United States percent distribution by weight to the 84,481 North Carolina births in 1980 and then applying the North Carolina weight-specific neonatal death rates to these births results in 692 expected neonatal deaths. Thus if the North Carolina birth-weight distribution in 1980 had been the same as that in the United States, 138 fewer neonatal deaths would have occurred, without any change in the weight-specific survival rates. Further, the North Carolina neonatal mortality rate would be 8.2 rather than 9.8, a 16.3 percent reduction and below the U.S. rate of 8.5 rather than higher as actually occurred.

We conclude that neonatal mortality is higher in North Carolina than in the United States because of a less favorable birth weight distribution and, in fact, weight-specific neonatal death rates are on the whole lower in North Carolina.

Neonatal Death Rates by Race

Standardizing the North Carolina neonatal mortality rate in the manner shown above does not take into account that the percent nonwhite in North Carolina is higher than that in the United States. On the average, nonwhites have a substantially higher percent of low-weight births than whites. If one assumes that it is not reasonable for nonwhites in North Carolina to achieve the same birth-weight distribution as the U.S. average in the near future, then the approach of doing race-specific standardization would be appropriate. In North Carolina the white and nonwhite neonatal mortality rates in 1980 were 8.1 and 13.5, compared to the United States rates of 7.5 and 12.5. If North Carolina whites and nonwhites had the same birth-weight distributions as their white and nonwhite counterparts in the United States, and there were no change in the North Carolina race-weight-specific neonatal death rates, the 1980 North Carolina white neonatal mortality rate would be 7.5 and the nonwhite rate would be 12.0. Thus, even when each race is considered separately, the higher North Carolina neonatal death rate can be attributed entirely to lower birth weights.

A very interesting finding that emerges from this race-specific analysis is that 1980 North Carolina nonwhite weight-specific neonatal death rates were **lower** for every weight category than the comparable white rates. This was also true in North Carolina for 1981, and other studies have consistently shown substantially lower nonwhite neonatal mortality rates for birth-weight categories under 2501 grams (*10,11,12*). David and Siegel (*12*)

Table 1

Standardization of North Carolina's Neonatal Mortality Rate (NMR) to the Birth-Weight Distribution of the United States in 1980*

Birth Weight in Grams	North Carolina Actual				United States	North Carolina Expected		
	No. Of Live Births	% Of Live Births	No. Of Neonatal Deaths	Neonatal Deaths Per 1000 Live Births	% Of Live Births	No.Of Live Births	No. Of Neonatal Deaths	Neonatal Deaths Per 1000 Live Births
≤1000	611	0.72	432	707.0	0.54	457	323	
1001-1500	637	0.75	94	147.6	0.61	515	76	
1501-2000	1259	1.49	55	43.7	1.32	1116	49	
2001-2500	4204	4.98	61	14.5	4.37	3691	54	
≥2501	77770	92.06	188	2.4	93.16	78702	190	
Total	84481		830	9.8		84481	692	8.2

*Crude N.C. NMR (actual) is 9.8 per 1000 live births; standardized NMR (expected) is 8.2 per 1000 live births. The 1980 United States crude NMR is 8.5 per 1000 live births.

Note: A few North Carolina births (26) and neonatal deaths (14) of unknown birth weight have been allocated to birth-weight categories according to the percent distribution of those with known birth weight.